# PICKUP TRUCK TENT CAMPING SYSTEM

## RELATED APPLICATIONS

The present application claims priority from provisional U.S. patent application serial no. 60/241,160 filed October 18, 2000.

## TECHNICAL FIELD

The present invention relates generally to camping equipment.

## BACKGROUND OF THE INVENTION

Pickup truck mounted enclosures that are used to provide temporary shelter while camping are well known. A majority of these enclosures are heavy rigid structures that are semi-permanently attached to the cargo box of a pickup truck. Collapsible rigid enclosures, i.e., "pop-up" campers, have been provided that include rigid panels that fold into a low profile for travel and then unfold, or pop-up, to form a camping enclosure. Unfortunately, these rigid enclosures are extremely heavy, difficult to install on a pickup truck, difficult to remove from a pickup truck, and relatively expensive.

Soft enclosures, i.e., tents, that are mountable in the cargo box of a pickup truck have also been provided. Typically, these tents are limited in size to the length of the cargo box with the tailgate in the vertical, or closed, position. Other tents have been provided that are partially attached to the cargo box and partially attached to the ground. Each of these tents are quite complex and takes a

substantial amount of time to erect. Moreover, these tents tend to become quite hot in direct sunlight and do not provide adequate shelter from rain and wind. Also, these tents do not provide adequate storage space.

The present invention has recognized these prior art drawbacks, and has provided the below-disclosed solutions to one or more of the prior art deficiencies.

## SUMMARY OF THE INVENTION

The present invention includes a tent assembly that can be removably attached to the cargo box of a pickup truck. The cargo box includes a left sidewall and a right sidewall. A forward wall and a tailgate are installed between the sidewalls at opposite ends of the cargo box. Moreover, the tent assembly includes a center section that defines a top, a left sidewall, and a right sidewall. Each sidewall includes an inner side flap and an outer side flap that can be draped over respective cargo box sidewalls and then, attached thereto. The tent sidewalls extend from the forward wall of the cargo box, along the length of the cargo box sidewalls, and across the tailgate, when it is an open horizontal position. The tent assembly also includes a horizontal flap that is connected between the tent sidewalls such that it is beneath the open tailgate.

In a preferred embodiment, the tent assembly includes a forward tent pole sleeve that has a forward tent pole disposed therein. Preferably, the forward tent pole is inclined forward at an angle with respect to the vertical when the tent assembly is erected in the cargo box. The tent assembly also includes a center tent pole sleeve that has a center tent pole sleeve disposed therein and an aft tent pole sleeve that has an aft tent pole sleeve disposed therein. In a preferred

embodiment, the aft tent pole sleeve is inclined aft with respect to the vertical when the tent assembly is erected in the cargo box.

In the presently preferred embodiment of the invention described below, the forward tent pole angle is inclined at an angle of between ten degrees to thirty degrees (10° - 30°) and the aft tent pole angle is inclined at an angle of between ten degrees to thirty degrees (10° - 30°). The center tent pole is perpendicular to the horizontal.

In a typical cargo box, each sidewall includes an interior lip and the inner flap includes plural hooks that extend from it. The hooks are used to the hook each inner flap to the interior lip of each sidewall. Some pickup trucks, on the other hand, can include a cargo box liner installed within the cargo box. As such, the cargo box can be formed with plural holes, and the hooks, that extend from the inner flap, can be inserted into the holes to fasten each inner flap to the cargo box liner. Preferably, the tent assembly includes plural restraint lines that connect the outer flaps to the cargo box.

In a preferred embodiment, the tent assembly includes a forward section and an aft section that are attached to the center section to enclose the center section of the tent assembly. Moreover, a side screen is incorporated into each sidewall of the center section and an aft screen is incorporated into the aft section of the tent assembly.

In another aspect of the present invention, a pickup truck tent camping system is used in conjunction with a pickup truck that has a cargo box. The tent camping system includes a platform assembly installed in the cargo box. A tent assembly is installed over the platform assembly. Additionally, a tent cover is installed over the tent assembly.

In yet another aspect of the present invention, a pickup truck tent camping system is used in conjunction with a pickup truck. The tent camping system includes cargo box means and tent means covering the cargo box means. Flap means hold the tent means onto the cargo box means.

The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a pickup truck;

Figure 2 is a perspective view of a pickup truck with a tent assembly installed within the cargo box;

Figure 3 is a perspective view of a pickup truck with an alternative tent assembly installed within the cargo box;

Figure 4 is a detail view of a connection between the tent assembly and a typical cargo box;

Figure 5 is a detail view of a connection between the tent assembly and a cargo box having a cargo box liner installed therein;

Figure 6 is a side view of the pickup truck with a tent cover installed over the tent assembly;

Figure 7 is a side view of the pickup truck with the tent cover opened to expose the tent assembly;

Figure 8 is a perspective view of the pickup truck with the tent removed to reveal a tent platform assembly;

Figure 9 is a detail view of the connection of the platform assembly to the pickup truck;

Figure 10 is an exploded detail view of the connection between the platform assembly support bracket and corresponding slat;

Figure 11 is a perspective view of the pickup truck with the tent removed to reveal an alternative tent platform assembly;

Figure 12 is detail view of the connection between the alternative platform assembly to the pickup truck as indicated by circle 12 in Figure 11;

Figure 13 is a cross-section view of the platform assembly slat taken along line 13-13 in Figure 12; and

Figure 14 is perspective view of the pickup truck with a travel cover installed over the cargo box.

## DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

Referring initially to Figure 1, a pickup truck is shown and generally designated 10. Figure 1 shows that the pickup truck includes a cab 12 and a cargo box 14. As shown, the cargo box 14 includes a cargo box floor 16 having a left vertical sidewall 18, a right vertical sidewall 20, and a forward wall 22 extending perpendicularly between the side walls 18, 20 form a generally box shape. It is to be understood that the sidewalls 18, 20 are parallel to each other. Figure 1 further shows a cargo box tailgate 24 can be pivotably installed between the aft ends of the sidewalls 18, 20 such that the axis around which the tailgate 24 pivots is parallel to the forward wall 22 of the cargo box 14. The tailgate 24 is movable between a closed position, wherein the tailgate 24 is upright over the cargo box floor 16 and the end of the cargo box 14 is closed, and an open position, wherein the tailgate 24 is lowered and the end of the cargo box 14 is open. Beneath the tailgate 24 is a bumper 25.

Referring now to Figure 2, a tent assembly, generally designated 26, is shown removably attached to the cargo box 14 of the pickup truck 10. In a preferred embodiment, the tent assembly 26 is manufactured from rain resistant material. Figure 2 shows that the tent assembly 26 includes a generally inverted "U"-shaped center section 28 that defines a top 30, a left tent sidewall 32, and a right tent sidewall 34. As shown in Figure 2, each tent sidewall 32, 34 extends along the entire length of the top of each cargo box sidewall 18, 20, down the end of each cargo box sidewall 18, 20, and along each side of the open tailgate 24. Each tent sidewall 32, 34 can include a screen 36 that allows air to enter the tent assembly 26, but prevents insects from doing so. Each screen 36 is backed by a zippered side vent panel 38 that can selectively cover its respective screen 36 to control the amount of air entering the tent assembly 26 and to prevent rain from entering the tent assembly 26.

Figure 2 further shows that the tent assembly 26 includes a generally vertical aft section 40 that is sewn to the center section 28 in order to enclose the aft opening of the tent assembly 26. A generally vertical forward section (not shown) is also sewn to the center section 28 to enclose the forward opening of the tent assembly 26. As shown in Figure 2, the aft section 40 of the tent assembly 36 includes an aft screen 42 incorporated therein. It is to be understood that the aft screen 42 is zippered around its outer periphery so that it may be opened to allow access to the interior of the tent assembly 26. The aft screen 42 is backed by a zippered door panel 44 that, like the zippered side vent panels 38, can selectively cover its respective screen 42 to control the amount of air entering the tent assembly 26 and to prevent rain from entering, as well. A forward screen (not

shown) and a cab access panel (not shown) are incorporated into the forward section of the tent assembly 26.

Still referring to Figure 2, the tent assembly 26 includes a horizontal flap 46 that is sewn to the left sidewall 32, the right sidewall 34, and the aft section 40. When the tent assembly 26 is installed on the cargo box 14 of the pickup truck, the horizontal flap 46 is placed underneath the open tail gate 24. As also shown in Figure 2, the tent assembly 26 includes a forward tent pole sleeve 48, a center tent pole sleeve 50, and an aft tent pole sleeve 52. Slidably disposed within the forward tent pole sleeve 48 is a forward tent pole 54. As shown, the forward tent pole 54 is inclined forward from top of the cargo box 14 to form an angle 56 with respect to the vertical. Preferably, the angle 56 is in a range from ten degrees to thirty degrees (10° -30°). A center tent pole 58 is slidably disposed within the center tent pole sleeve 50. When the center tent pole 58 is properly installed, it establishes an angle 60 with respect to the horizontal. In a preferred embodiment, this angle 60 is approximately ninety degrees (90°). Figure 2 also shows an aft tent pole 62 slidably disposed within the aft tent pole sleeve 52. The aft tent pole 62 is inclined aft from the top of the cargo box 14 to establish an angle 64 with respect to the vertical. Preferably, the angle 64 is in a range from ten degrees to thirty degrees (10° - 30°). With this cooperation of structure, the tent poles 54, 62 advantageously hold the tent assembly 26 in tension, i.e., in a slightly stretched configuration.

It is to be understood that the tent poles 54, 58, 62 are flexible tent poles well known in the art. Accordingly, each tent pole 54, 58, 62 can include tubular tent pole sections that car be fitted together end to end. An elastic cord is installed through the tent pole sections. The cord is stretched and then attached to the ends of the tent pole. The tension in the cord compresses the tent pole sections and

prevents the tent pole from easily coming apart although the sections can be disengaged by hand when desired to collapse the tent pole 54, 58, 62. When installed, each tent pole 54, 58, 62 is bent in an arc and prevents the center section 28 of the tent assembly 26 from collapsing.

As shown in Figure 2 and further described, plural center restraint lines 66 partially attach the center section 28 of the tent assembly 26 to the cargo box 14. Aft restraint lines 68 are used to stay the aft end of the tent assembly 26. The aft restraint lines 68 are connected between the aft section 40 of the tent assembly 26 and the truck bumper. Preferably, each aft restraint line 68 is permanently attached, e.g, sewn, to the aft section 40 of the tent assembly 26 and each includes a hook that can be hooked to the bottom edge of the truck bumper 25. Figure 2 shows that the tent assembly 26 further includes forward adjustment straps 70 that are used to adjust the tent assembly 26 so that it will fit snugly on cargo boxes 14 of varying sizes. Each adjustment strap 70 includes one end attached to the forward section of the tent assembly 26 and another end attached to the center section 28 of the tent assembly 26. A slider is installed along each adjustment strap 70 and can be used to adjust the distance between the ends of the strap 70. Thus, the corner of the tent assembly 26 can be cinched tightly around the corner of the cargo box 14. Referring briefly to Figure 3, the tent assembly 26 may also be attached to the cargo box 14 by plural snap fasteners 72.

Referring now to Figure 4, the remaining details concerning the means for connecting the tent assembly 26 to the pickup truck 10 are shown. For clarity, Figure 4 focuses on the tent assembly connection point beneath the center tent pole 58 on the right side of the pickup truck 10. However, it is to be appreciated that all

of the connection points between the center section 28 of the tent assembly 26 and the cargo box 14 are identical.

Figure 4 shows that the sidewall 20 of the cargo box 14 forms an interior lip 74. The tent assembly 26 includes an inner side flap 76 that is draped over the interior lip 74 of the cargo box sidewall 20. A hook 78 is attached to the inner side flap 76 of the tent assembly 26 and fits over the interior lip 74 of the cargo box sidewall 20 to hold the tent assembly 26 to the pickup truck 10. As shown, the tent assembly 26 also includes an outer side flap 80 that drapes outwardly over the cargo box sidewall 20. One end of the center section restraint line 66 is attached to the exterior side flap 80 while the other hooks underneath the cargo box 14. Figure 4 further shows a tent pole anchor strap 82 that is removably attached to the end of the tent pole 58 in order to support the end of the tent pole 58 and help it maintain the arc shape described above. It is to be understood that the inner and outer flaps 76, 80 may be attached to the cargo box by snap fasteners or similar means. Furthermore, it is to be understood that the front section of the tent assembly 26 includes an inner and outer side flap configuration, similar to that described above, that allows the front section of the tent assembly 26 to be attached to the front wall 22 of the cargo box 14, e.g., by restraint lines or snap fasteners.

Figure 5 shows details of the means for connecting the tent assembly 26 to a pickup truck 10 having a cargo box liner 84. As shown in Figure 5, the cargo box liner 84 is formed with a hole 86, e.g., by drilling therethrough, into which the hook 78 extending from the interior flap 76 is inserted. The remaining means for connecting the center section 28 of the tent assembly 26 to the cargo box 14 is the same as that described above in conjunction with Figure 4. It is to be appreciated that the inner side flap 76 may be attached to the cargo box liner 84 by snap

fasteners or similar means. Thus, the need to drill holes in the cargo box liner 84 would be eliminated.

Referring to Figure 6, a tent cover, generally designated 88, is shown installed over the tent assembly 26. In a preferred embodiment, the tent cover 88 is manufactured from rain resistant material. Figure 6 shows that the tent cover 88 includes a center tent cover section 90 having a forward tent cover extension 92 and an aft tent cover extension 94 extending therefrom to cover the entire top 30 of the tent assembly 26. During rain showers, the extensions 92, 94 prevent rain entering the tent assembly 26 through the forward and aft screens 42.

As shown in Figure 6, the tent cover 88 includes a forward tent cover sleeve 96 and an aft tent cover pole sleeve 98 into which a forward tent cover pole 100 and an aft tent cover pole 102 are slidably disposed, respectively. The ends of the tent cover poles 100, 102 are anchored in tent cover pole grommets 104 that are located a few inches below the forward and aft tent pole sleeves 48, 52. When properly anchored in the grommets 104, the tent cover poles 100, 102 bend away from the center of the tent cover 88 to provide support for the tent cover extensions 92, 94. Figure 6 also shows plural connectors 106 located along the bottom edge of the tent cover 88 to which the tent cover 88 is removably attached. These connectors 106 allow the tent cover 88 to be fastened tightly over the tent assembly 26 and prevent the tent cover 88 from blowing off the tent assembly 26 during high winds. Hook-and-loop material (not shown) is also used between the exterior of the tent assembly 26, e.g., along the tent pole sleeves 48, 50, 52, and the interior of the tent cover 88 to further prevent the tent cover 88 from being forcefully removed from the tent assembly 26 by strong winds.

Referring still to Figure 6, a vertical seam 108 capable of being opened, e.g, through use of a zipper or hook-and-loop material, is incorporated into the tent cover 88 near its midpoint. The vertical seam 108 can be closed, as shown in Figure 6, to provide protection against extreme weather conditions. On the other hand, as shown in Figure 7, the seam 108 can be opened and the tent cover 88 folded back to expose the side screens 36 installed in the tent assembly 26. Thus, shade is provided for the tent assembly 26 while allowing increased airflow through the tent assembly 26. Moreover, since there is an air gap between the tent assembly 26 and the tent cover 88, the amount of heat transferred to the tent assembly 26 during sunny days is minimized.

Referring now to Figures 8 through 10, a preferred platform assembly, generally designated 110, is shown installed in the cargo box 14 of the pickup truck 10. Figure 8 shows that the platform assembly 110 includes plural brackets 112 that are equally spaced along the sidewalls 18, 20 of the cargo box 14. Plural slats 114 span the interior width of the cargo box 14 between the sidewalls 18, 20. The slats 114 are supported at each end by a bracket 112. Preferably, the slats 114 are parallel to each other and to the forward wall 22 of the cargo box 14. As shown in Figure 8, a structural layer 116 of material, e.g., plywood, particle board, etc., can be attached to the top of the slats 114. In turn, a cushioned layer 118 can be installed on top of the structural layer 116.

It is to be appreciated that the tent assembly 26 can be attached to the cargo box 14 over the platform assembly 110. Thus, the platform assembly 110 provides a comfortable base structure for the tent assembly 26. Moreover, since the platform assembly 110 is suspended within the cargo box 14, the space

established between the platform assembly 110 and the floor 16 of the cargo box 14 can be used as storage space, e.g, for camping gear.

Figures 9 and 10 show details regarding the brackets 112, the slats 114 and the connection therebetween. As shown in Figures 9 and 10, each bracket 112 includes a horizontal top flange 120 that is bolted or otherwise attached to the top of the cargo box sidewalls 18, 20. A vertical section 122 extends downwardly from the inner edge of the top flange 120. It is to be understood that the vertical section 122 is perpendicular to the top flange 120. Figures 9 and 10 further show that a slat connector 124 is attached to the bottom of the vertical section 122. The slat connector 124 is sized and shaped to receive the correspondingly sized and shaped end of a slat 114. The bracket 112 also includes a vertical slot 126 formed in the vertical section 122. A connector (not shown), e.g., a bolt, may be installed in the vertical slot 122 to further constrain the motion of the bracket 112. As shown, the slat connector 124, in one embodiment, is formed with a bore 128 into which a dowel pin 130 extending from the slat 114 fits in order to constrain the motion of the slat 114 relative to the bracket 112.

Referring to Figure 11, an alternative embodiment of the platform assembly, generally designated 132, is shown attached to the top of the cargo box 14. Figure 11 shows that the platform assembly 132 includes a left side rail 134 and a right side rail 136 installed along the length of the top of the cargo box sidewalls 18, 20. Plural slats 138 span from the left cargo box sidewall 18 to the right cargo box sidewall 20 between the rails 134, 136. Preferably, the slats 138 are perpendicular to the rails 134, 136 and parallel to the forward wall 22 of the cargo box 14. As shown in Figure 11, the each rail 134 includes an outer surface 139 to which plural snap fasteners 140 are installed. These snap fasteners 140 facilitate the installation

of a cover, described below, or the tent assembly 26 to the cargo box 14. A structural layer 141 can be installed on top of the slats 138 to provide a base for a tent assembly 26 installed on the cargo box 14 over the platform assembly 132.

Figure 12 shows details of the connection between the cargo box 14 and the slats 138 of the alternative platform assembly 132. As shown, each slat 138 forms a lip or extension that fits over the top of the cargo box sidewall 18 and connects to the interior part of the rail 134. Referring to Figure 13, it is shown that each slat 138 includes a horizontal upper member 142 and a vertical lower member 144 that are attached to each other to form a slat 138 having a generally "T"-shaped cross-section.

Figure 14 shows a preferably rain resistant travel cover, generally designated 146, installed over the cargo box 14 of the pickup truck 10 to protect the items under to the cover 146 and inside the cargo box 14 while the truck is traveling to and from a camp site. As shown in Figure 14, plural snap fasteners 148 are used to attach the cover 146 to the cargo box 14.

With the configuration of structure described above, it is to be appreciated that the tent assembly 26 can be removably attached to the cargo box 14 of a pickup truck 10 to provide a temporary shelter while camping. The tent assembly 26 extends along the entire length of the cargo box 14 and across the opened tailgate 24. With the addition of the platform assembly 110, adequate storage space is provided beneath the tent assembly 26 and the platform assembly 110.

While the particular PICKUP TRUCK TENT CAMPING SYSTEM as herein shown and described in detail is fully capable of attaining the above-described objects of the invention, it is to be understood that it is the presently preferred embodiment of the present invention and thus, is representative of the subject

matter which is broadly contemplated by the present invention, that the scope of the present invention fully encompasses other embodiments which may become obvious to those skilled in the art, and that the scope of the present invention is accordingly to be limited by nothing other than the appended claims, in which reference to an element in the singular is not intended to mean "one and only one" unless explicitly so stated, but rather "one or more." All structural and functional equivalents to the elements of the above-described preferred embodiment that are known or later come to be known to those of ordinary skill in the art are expressly incorporated herein by reference and are intended to be encompassed by the present claims. Moreover, it is not necessary for a device or method to address each and every problem sought to be solved by the present invention, for it is to be encompassed by the present claims. Furthermore, no element, component, or method step in the present disclosure is intended to be dedicated to the public regardless of whether the element, component, or method step is explicitly recited in the claims. No claim element herein is to be construed under the provisions of 35 U.S.C. section 112, sixth paragraph, unless the element is expressly recited using the phrase "means for."